Climatology of monthly mean winds and tidal winds by WINDII

Climatology of monthly horizontal mean winds and diurnal and semidiurnal winds of both zonal (u) and meridional (v) components is given in the region of 90-120 km with an interval of 2 km and 40°S-40°N with an interval of 5 degrees from January to December.

WINDII employed optical Doppler interferometry to measure small wavelength shifts of the narrow atomic and molecular airglow emission lines induced by the bulk velocity of the atmosphere carrying the emission species [*Shepherd et al.*, WINDII: The Wind Imaging Interferometer on the Upper Atmosphere Research Satellite, JGR 98, 1993]. The winds used to provide the climatology are by atomic oxygen emission data at 557.7 nm (O(^{1}S), the green line) from version V5.11 of the processing software during December 1991 - August 1997.

The monthly winds used to produce the mean winds and tides are the zonally (i.e. longitudinally) averaged winds over a period of 40 days centered on the 15th day of each month. A weighted least squares fit on the time series of 24 hours of zonally averaged wind is used to determine the mean winds, and amplitudes and phases of diurnal and semidiurnal tides, as well as their standard deviations (SDV) [*McLandress and Zhang*, Satellite observations of mean winds and tides in the lower thermosphere. Part 1: Aliasing and Sampling Issues, JGR 2007; *Zhang et al.*, Satellite observations of mean winds and tides in the lower thermosphere. Part 2: WINDII monthly winds for 1992 and 1993, JGR 2007].

There are 12 data files in ASCII for each month. In each file there are 20 arrays of two dimensions (17 latitudes, 16 altitudes) arranged as followings:

Arrays 1 & 2 zonal mean zonal winds & SDV (m/s, positive/negative numbers are for eastward/westward winds)

Arrays 3 & 4 zonal mean meridional winds & SDV (m/s, positive/negative numbers are for northward/southward winds)

Arrays 5 & 6 zonal diurnal amplitude & SDV (m/s)

Arrays 7 & 8 meridional diurnal amplitude & SDV (m/s)

Arrays 9 & 10 zonal semidiurnal amplitude & SDV (m/s)

Arrays 11 & 12 meridional semidiurnal amplitude & SDV (m/s)

Arrays 13 & 14 zonal diurnal phase & SDV (deg.)

Arrays 15 & 16 meridional diurnal phase & SDV (deg.)

Arrays 17 & 18 zonal semidiurnal phase & SDV (deg.)

Arrays 19 & 20 meridional semidiurnal phase & SDV (deg.)